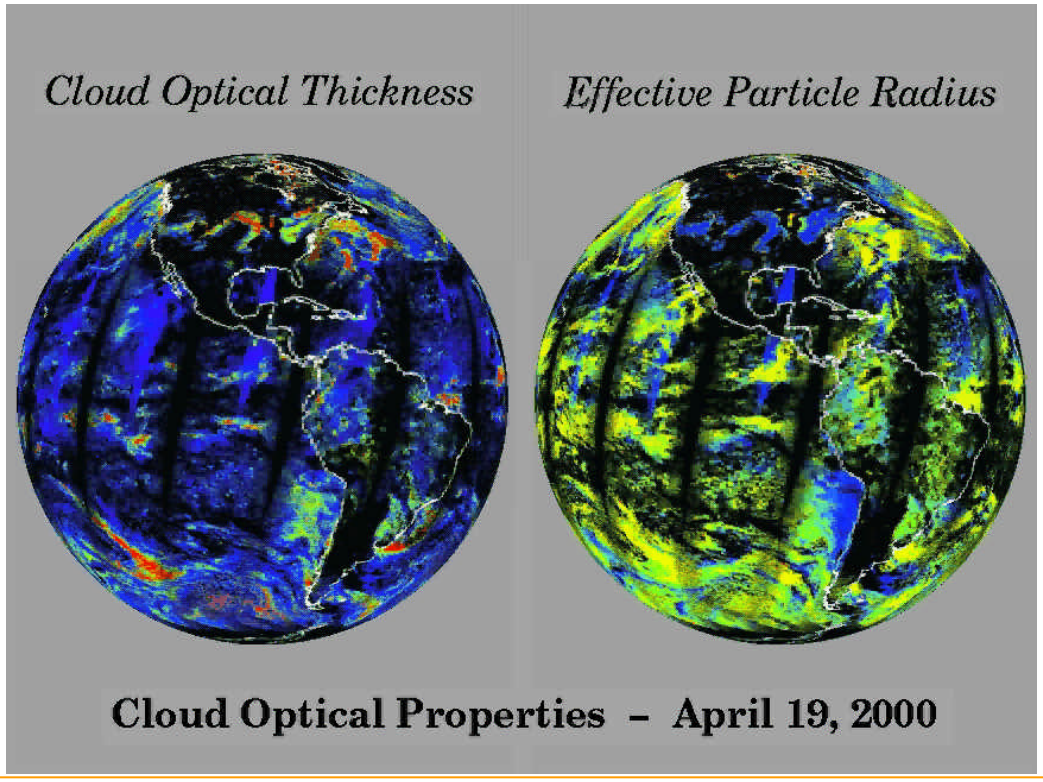
Cloud Optical Properties



"Granule Locator, Spatial and Dataset Subsetting, Visualization & Analysis Tools"

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Outline

- Finding the granule you want through locators
- Spatial and dataset subsetting tools
- Visualization and analysis tools overview

- Some tools and images can be found/downloaded from the MODIS Atmosphere website (http://modis-atmos.gsfc.nasa.gov)

Granule Locators

- **Problem:**
  - **Need a few granules out of the daily 288 granules**
  - **Need granules over same region, daily**

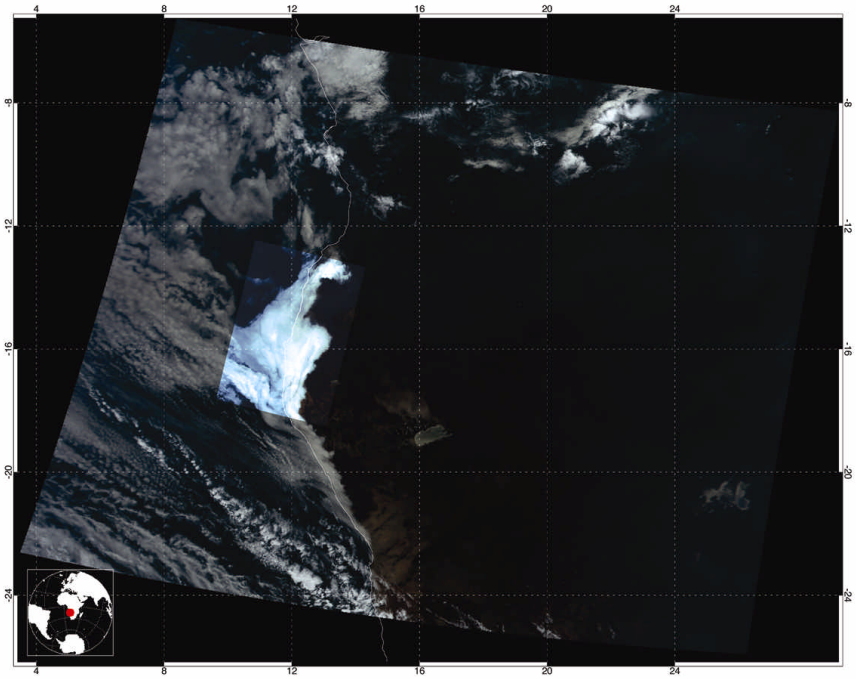
- **Locating granules that reside locally.**
  - **From local data directories**
  - **From a generic global map**
  - **From a global L1B or Level 3 image**

- **Locating non-resident Granules**
  - **DAAC data ordering sites**
  - **TERRA orbit predictions (http://www.ssec.wisc.edu/datacenter/terra)**

Spatial & Data Subsetting

R = 0.65 µm
G = 0.56 µm
B = 0.47 µm

Sept 13, 2000



Spatial and Dataset Subsetting

- **Possible Uses**
  - **Reduce data size for storage and usage**
  - **Statistical and data analysis**

- **Tools Description:**
  - **Performs spatial and/or dataset subsetting**
  - **Capacity to subset all atmosphere Level 1B and Level 2 granules**
  - **Tools can be easily modified for use on other HDF datasets**
    - » **Ex. Currently being used by some members of the Oceans group**

Visualization & Analysis Tools

- **Developed for product validation and analysis, and for presentational purposes**

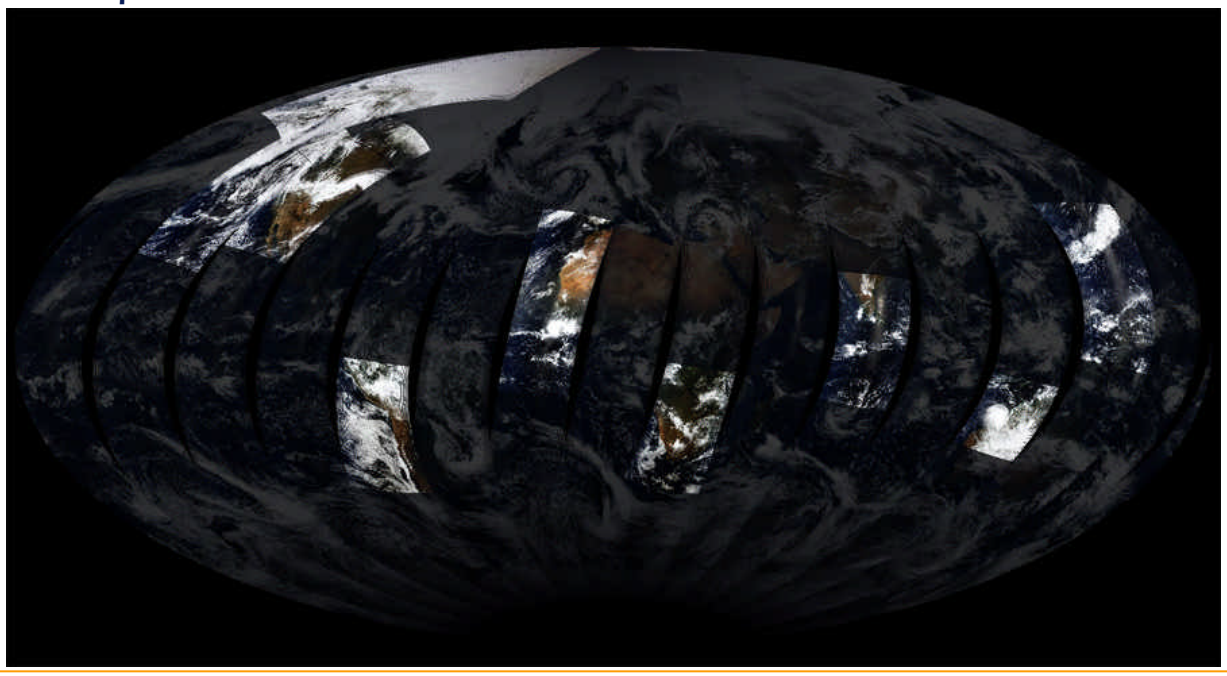
- **Tools available:**
  - **1.0 and 0.1 degree Level 3 product visualization**
  - **Global and granule Level 1B visualization**
  - **Level 2 ancillary input, output, QA, and byte flags**

- **Some tools on web, others still in house**

Global Level-1B Composite Image

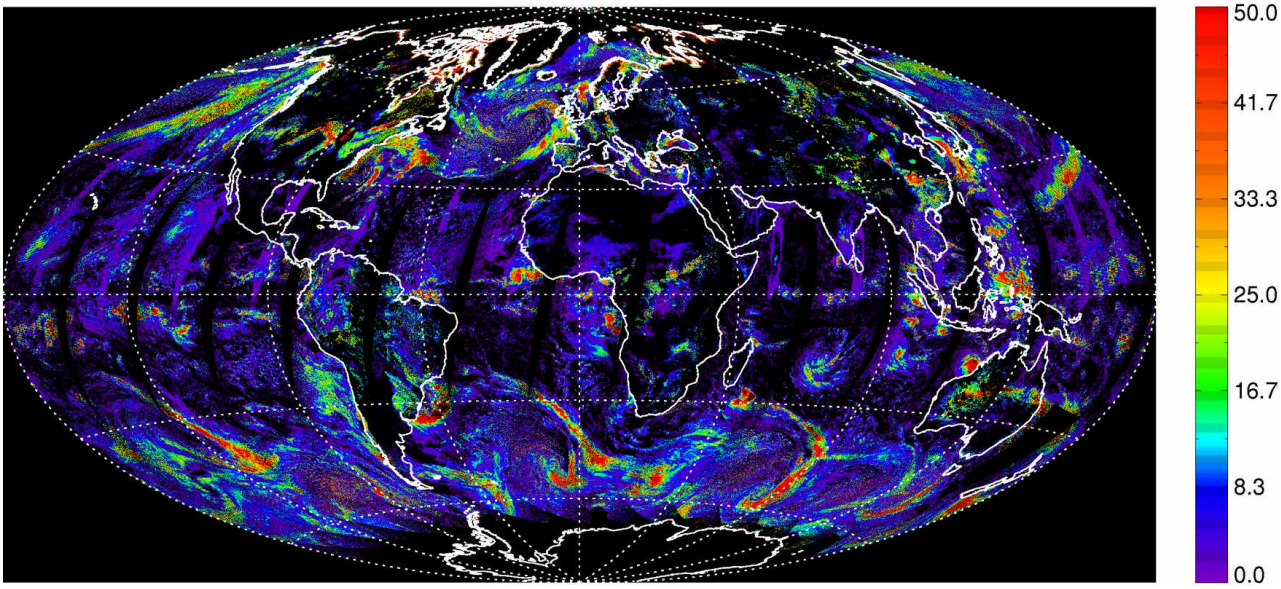
R = 0.65 µm
G = 0.56 µm
B = 0.47 µm

April 19, 2000



Global Cloud Optical Thickness

April 19, 2000

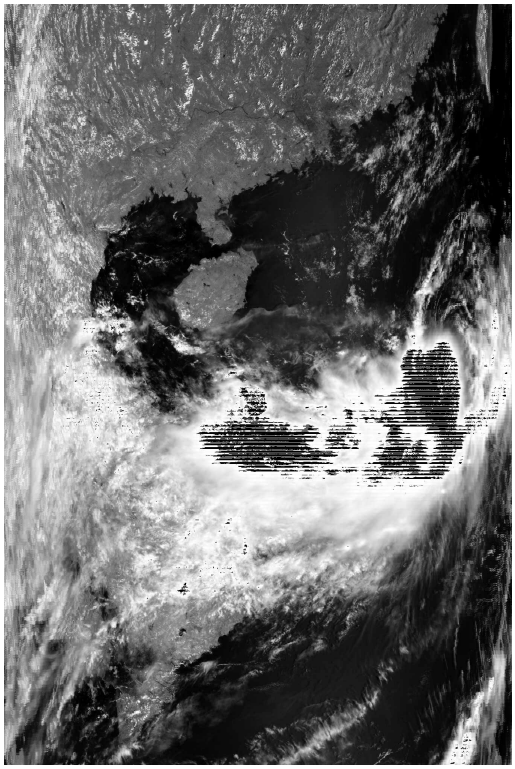


Granule Visualizations

- Obtain more detailed validation information
- Examine code performance
- Examine decision tree performance
- Examine ancillary inputs
- Examine granule level QA
- Granule level comparisons of products
- Level 2 ancillary input, output, QA, and byte flags

Level 1 B Visualization

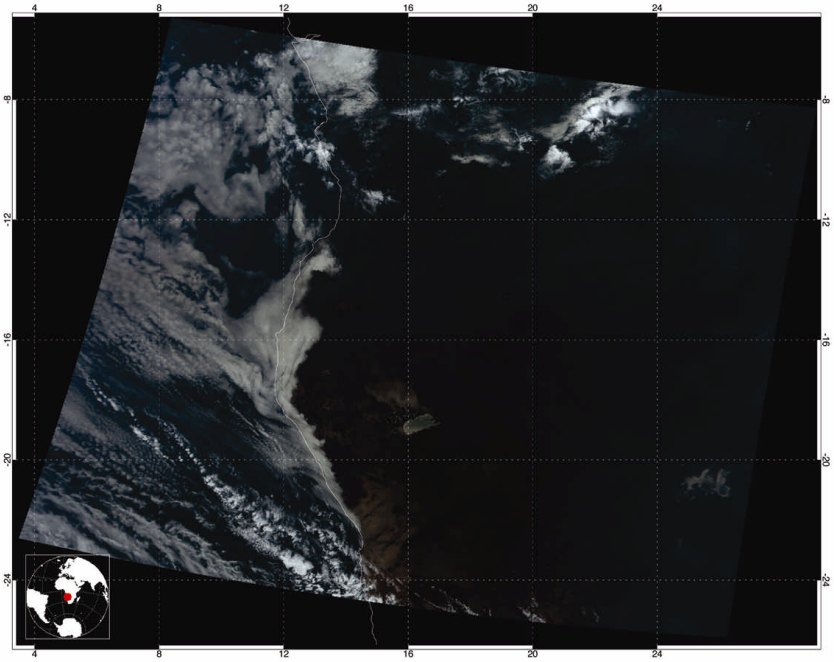
- Plot single bands of Level 1 B
- Used to demonstrate banding and saturation of various bands
- September 5th, 2000, 0330 UTC
  Band 2



Level 1 B Granule Visualization

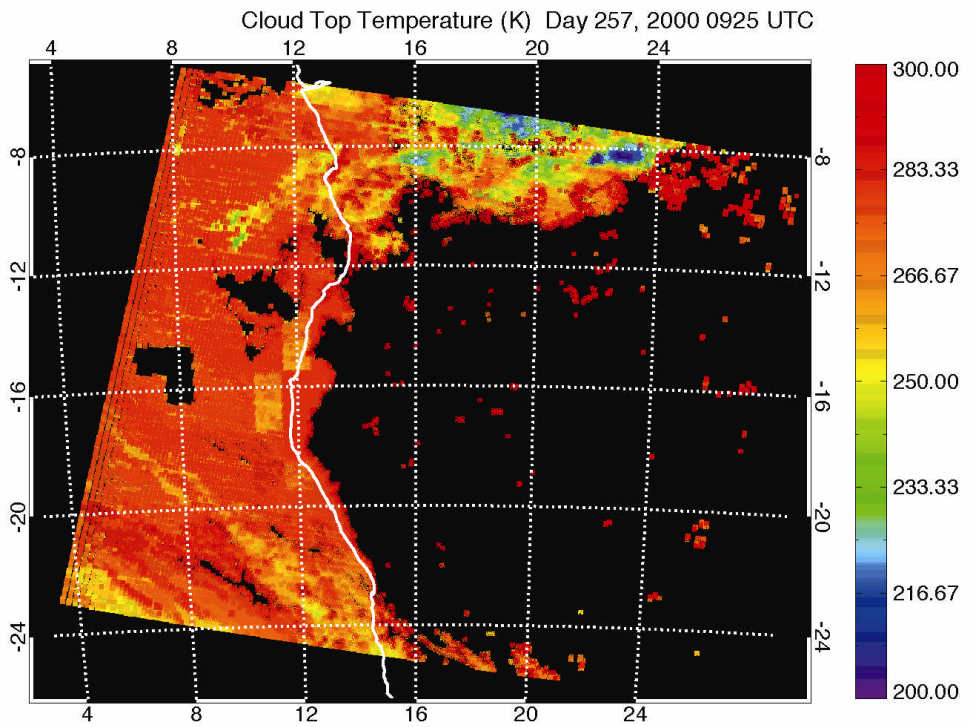
Sept. 13, 2000

R = 0.65 µm
G = 0.56 µm
B = 0.47 µm



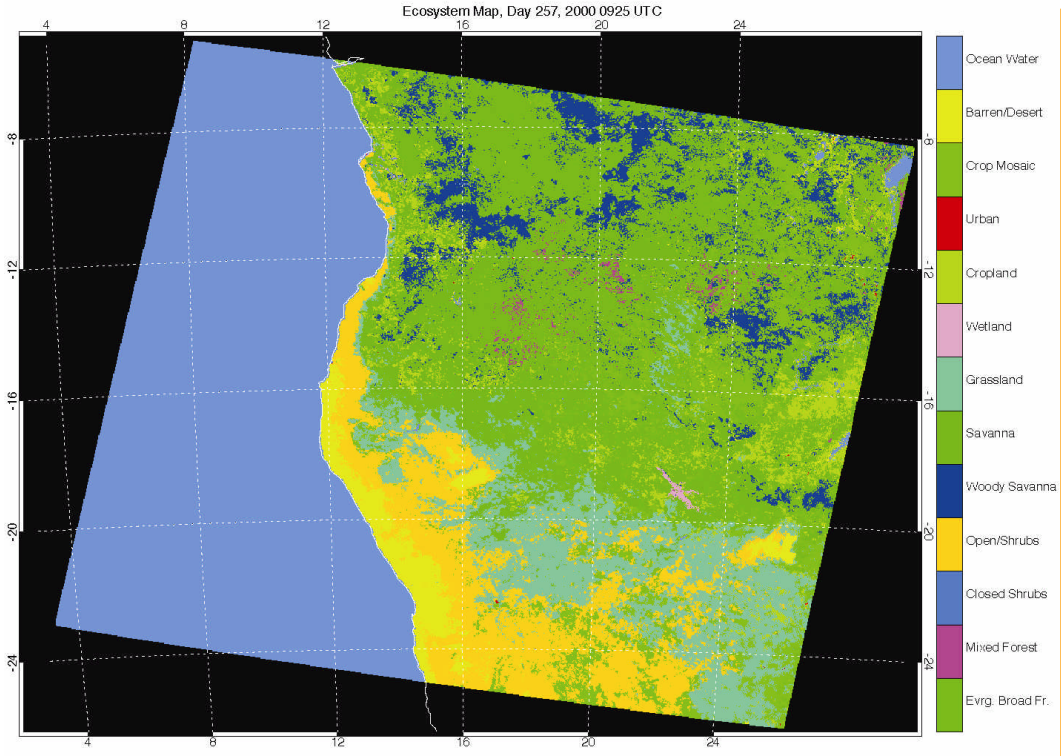
Level 2 Ancillary Visualization

Sept. 13, 2000



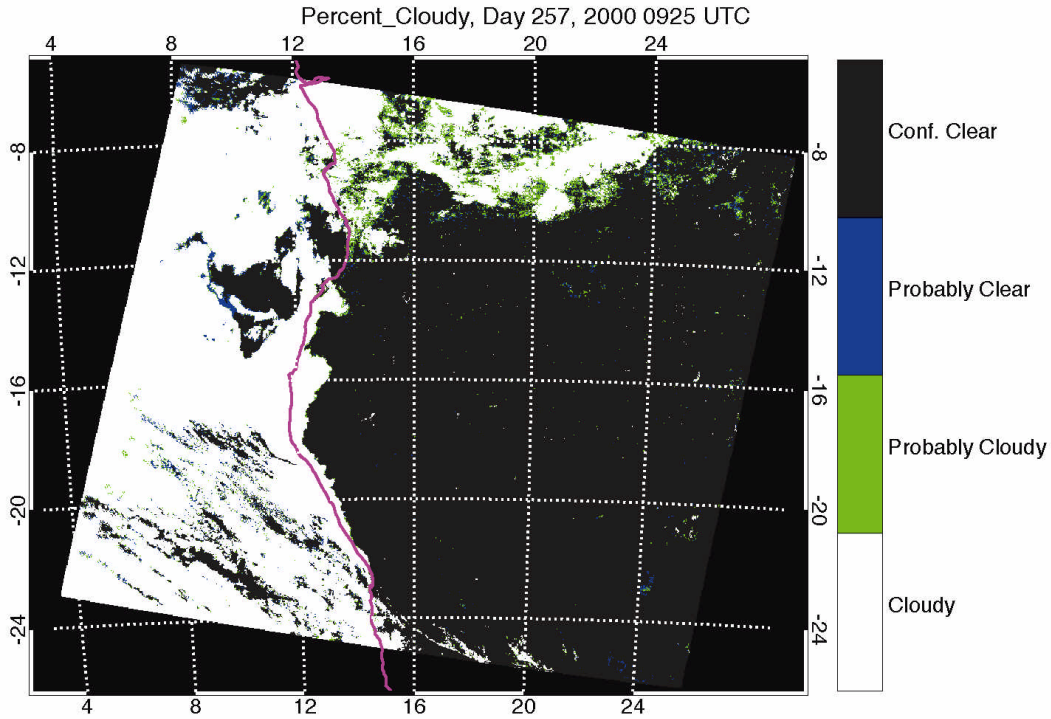
Level 2 Ancillary Visualization

Sept. 13, 2000



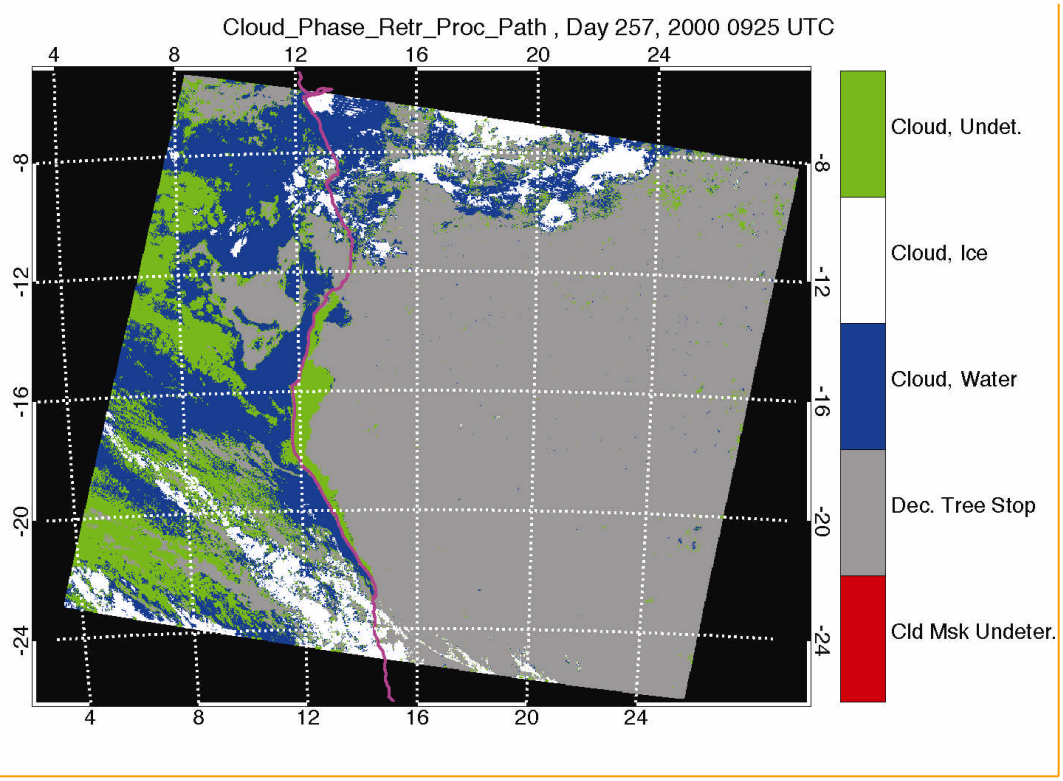
Cloud Mask Bit Flag Visualization

Sept. 13, 2000



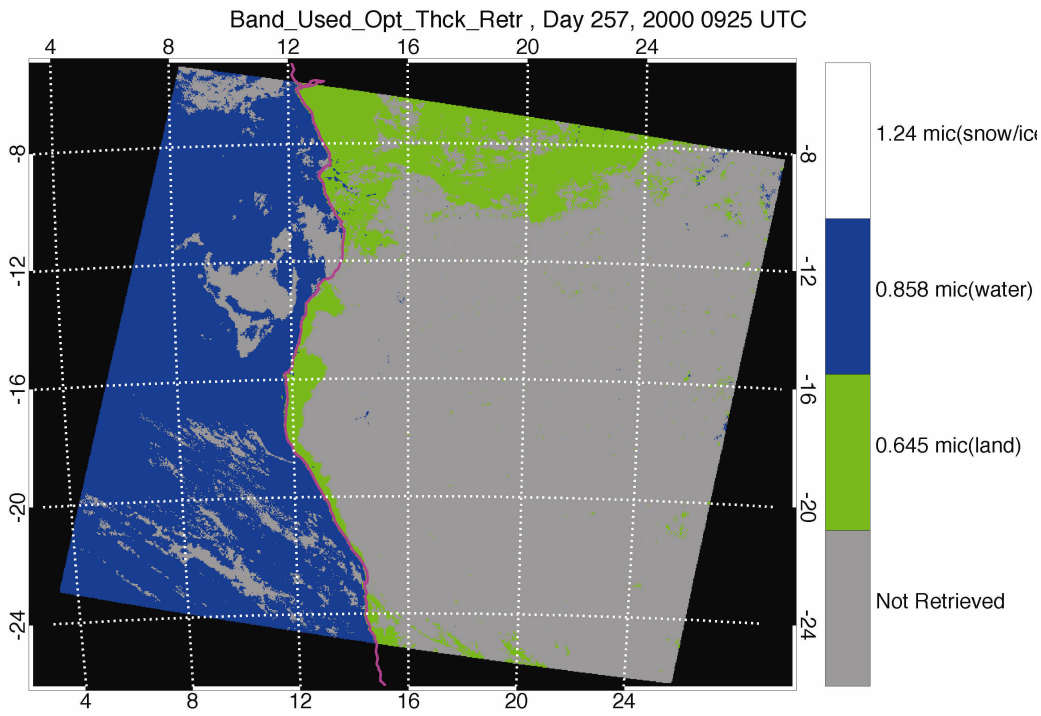
Level 2 QA Flag Visualization

Sept. 13, 2000



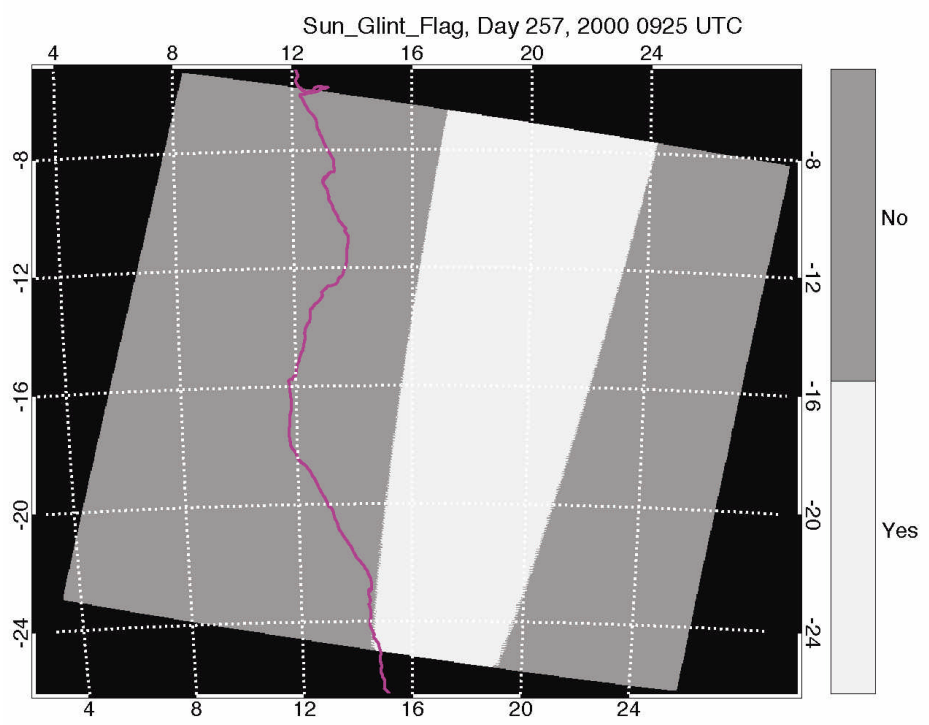
Level 2 QA Flag Visualization

Sept. 13, 2000



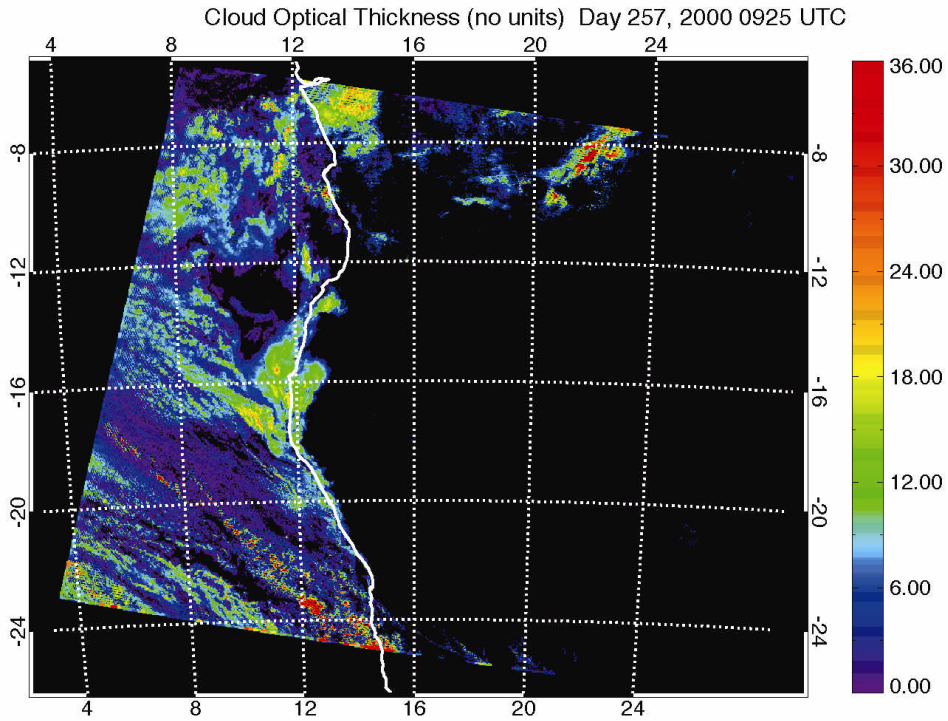
Level 2 QA Flag Visualization

Sept. 13, 2000



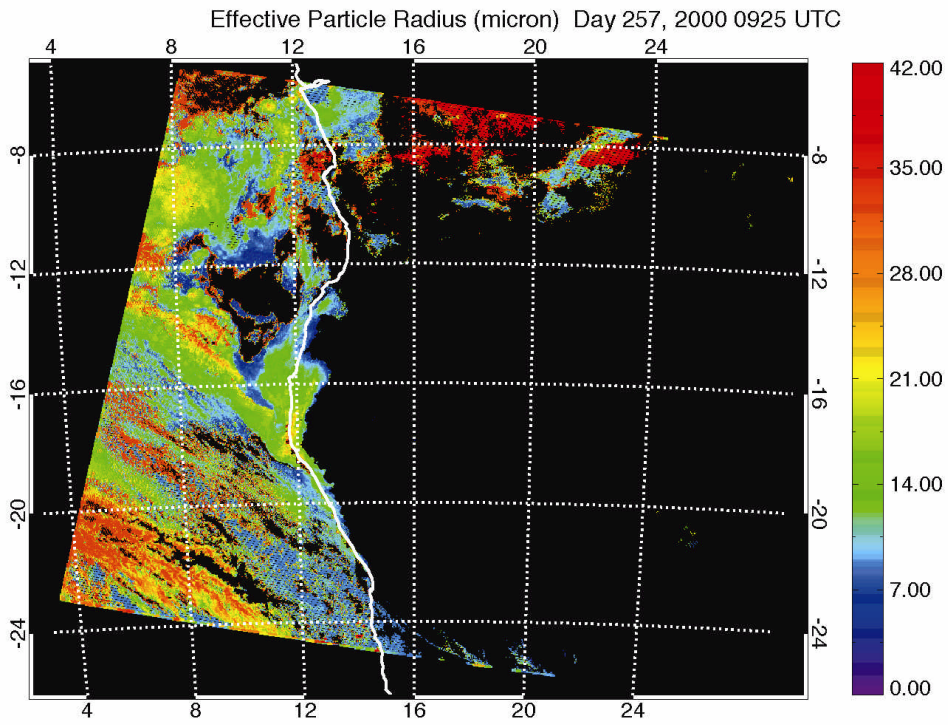
Level 2 Product Visualization

Sept. 13, 2000



Level 2 Product Visualization

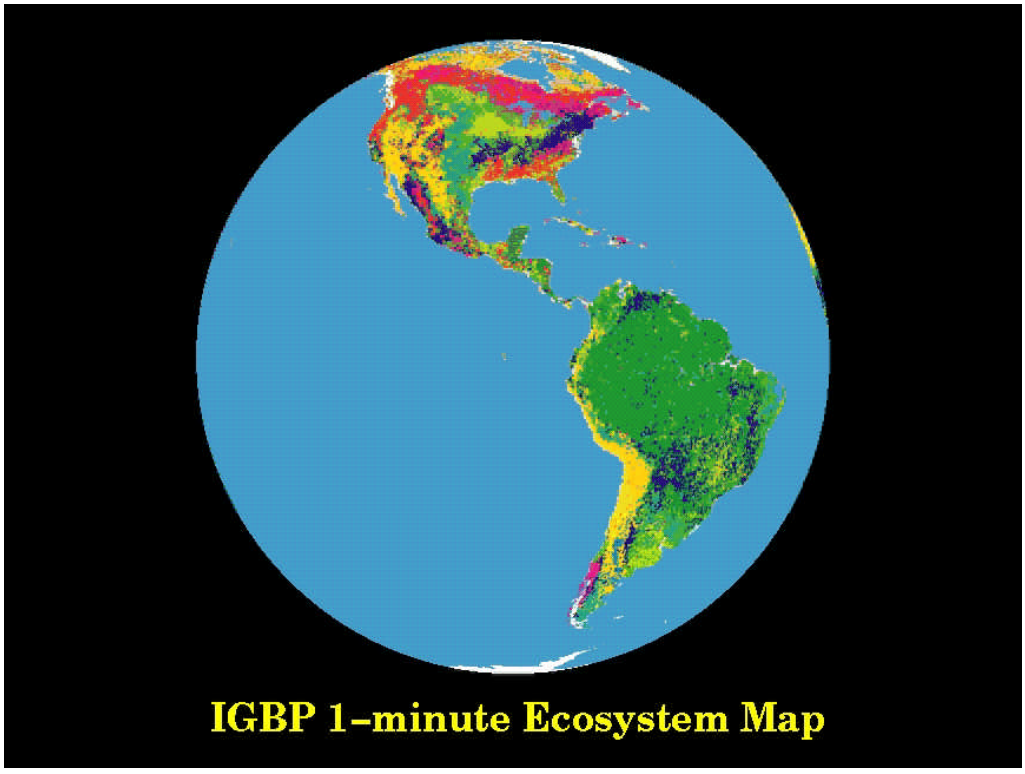
Sept. 13, 2000



Summary

- Brief summary and demonstration of some of the tools
  - Granule locators
  - Spatial and dataset subsetting tools
  - Visualization and analysis tools

- Valuable in accessing product quality and diagnosing problems

- Some tools and images can be found/downloaded from the MODIS Atmosphere website (http://modis-atmos.gsfc.nasa.gov)

Ecosystem Map